We claim:

1. A system comprising:

a circuit for selectively actuating an electromechanical actuator coupled to a valve of an engine, the circuit having at least one energy storage device and at least one switch that selectively energizes said actuator; and

a computer readable storage medium having a computer program encoded therein for regulating energy stored in said energy storage device, said computer storage medium comprising:

code for regulating voltage at said energy storage device by adjusting said switch during a first set of engine valve operating conditions.

2. The system of claim 1 wherein said code for regulating voltage adjusts said switch without substantially moving said valve of said engine.

3. The system of claim 1 wherein said computer readable storage medium further comprises code for adjusting said switch during a second set of engine valve operating conditions to open or close said valve and regulate engine output.

4. The system of claim 1 wherein said circuit further comprises at least two energy storage devices, and said code of said computer readable storage medium further regulates a voltage between said at least two energy storage devices.

5. The system of claim 1 wherein said energy storage device is a capacitor.

6. A system comprising:

a circuit for selectively actuating an electromechanical actuator coupled to a valve of an engine, the circuit having a split capacitor voltage source and at least a first switch that selectively energizes a first coil of said actuator and a second switch that selectively energizes a second coil of said actuator; and

a computer readable storage medium having a computer program encoded therein for regulating voltage at a reference between said first and second capacitors, said computer storage medium comprising:

code for adjusting at least one of said first and second switches during a first mode to regulate said voltage to a desired value; and

code for adjusting said at least one of said first and second switches during a second mode to actuate said valve of said engine.

7. The system of claim 6 where said code adjusts current to said first and second capacitors to regulate said voltage.

8. The system of claim 7 wherein said first mode includes conditions where said coils generate different loading on said circuit.

9. The system of claim 6 wherein said first mode includes a valve open position.

10. The system of claim 6 wherein said first mode includes when said valve is in an idle position.

11. The system of claim 6 wherein said first mode includes valve closed position.

12. The system of claim 6 wherein said second mode includes when said valve is opening.

13. The system of claim 6 wherein said second mode includes when said valve is closing.

14. The system of claim 6 wherein said engine operates, during a first set of conditions, with all cylinders carrying out combustion, and during a second set of conditions where at least one cylinder is deactivated.

15. A system comprising:

a circuit for selectively actuating an electromechanical actuators coupled to cylinder valves of an engine, the circuit having a split capacitor voltage source and at least a first switch that selectively energizes a first coil of a first actuator and a second switch that selectively energizes a second coil of a second actuator; and

a computer readable storage medium having a computer program encoded therein for regulating voltage at a reference between said first and second capacitors, said computer storage medium comprising:

code for adjusting at least one of said first and second switches during a first mode to regulate said voltage to a desired value; and

code for adjusting said at least one of said first and second switches during a second mode to actuate one of said first and second valves of said engine.

16. The system of claim 15 where said code adjusts current to said first and second capacitors to regulate said voltage.

17. The system of claim 16 wherein said first mode includes conditions where said coils generate different loading on said circuit.

18. The system of claim 15 wherein said first mode includes a valve open position.

19. The system of claim 15 wherein said first mode includes a valve closed position.

20. The system of claim 15 wherein said first mode includes a valve idle position.

21. The system of claim 15 wherein said first actuator is coupled to a first valve, and said second switch is coupled to a second valve, wherein said second mode includes when one of said first and second valves of said engine is opening.

22. The system of claim 15 wherein said first actuator is coupled to a first valve, and said second switch is coupled to a second valve, wherein said second mode includes when one of said first and second valves of said engine is closing.

23. The system of claim 15 wherein said engine operates with all cylinders carrying out combustion during a first set of conditions, and with at least one cylinder deactivated during a second set of conditions.